P-132 - GRAPEVINE GROWTH RESPONSE TO BIOINOCULANTS AND BIOCHAR APPLICATION

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Background

Grapevine is a perennial crop that is highly responsive to local environmental conditions and viticulture practices. Along with this, soil microorganisms should be taken into consideration since they provide important ecological services to the plant. Plant growth promoting rhizobacteria and arbuscular mycorrhizal fungi can establish symbiotic association with grapevine roots and due to their plant-beneficial traits they can enhance the growth and quality of the vineyard and the grape. Therefore, the use of such microorganisms as bioinoculants can benefit vegetative and productive parameters of grapevine. Soil amendments, such as biochar, can also improve plant performance and soil structure. Biochar is a product of pyrolysis of organic materials and its importance as an amendment has been recognized in the improvement of soil fertility and water retention.
This work aims to assess the effect of microbial inoculants and biochar on productive parameters of 10-year old grapevines and on vegetative parameters of new grapevines.

Method

The experiment was conducted at a 36-ha vineyard located in North Portugal inside the Vinho Verde appellation, on adult (10 year-old) and on new grapevine plants. In total, 6 treatments with three replicates each were applied in the experimental area, in a total of 18 plots (variety Alvarinho). The treatments applied comprised different combinations of PGPR, AMF, and biochar. Bioinoculants and biochar were applied at the time of the plantation in the new grapevines. In the 10-year old grapevines, bioinoculants were inoculated around plants and a soil scarification was done between lines to apply biochar. Plant performance will be followed for at least 3 growing seasons.

Results & Conclusions

The effect of bioinoculants and biochar application was evaluated at harvest. The number of grape bunches and total fruit yield were measured. Grape quality and nutrient content of 10-year old grapevines were assessed as well as biometric parameters of new grapevines.
This is a multi-year project where successive inoculations are planned to enhance plant performance over the years.

References & Acknowledgments

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